

**Air Toxics Workgroup (ATW)**  
**Rule 228 Discussion Paper**  
**May 9, 2013 DRAFT**

**ORR (2011) Report Recommendation A-1(9):**

R 336.1228 should be rescinded. This rule allows the Air Quality division to go beyond the requirements of the rule for any reason.

**ATW Discussion**

This ORR report recommendation has not been discussed with the ATW yet. It is on the agenda for the May 15, 2013 meeting. The purpose of this draft discussion paper is to provide the ATW with background information relevant to that discussion.

**Rule 228 Reads as Follows:**

R 336.1228 Requirement for lower emission rate than required by T-BACT and health based screening levels.

Rule 228. The department may determine, on a case-by-case basis, that the maximum allowable emission rate determined in R 36.1224(1), R 336.1225(1), R 336.1225(2), or R336.1225(3) may not provide adequate protection of human health or the environment. In this case, the department shall establish a maximum allowable emission rate considering all relevant scientific information, such as exposure from routes of exposure other than direct inhalation, synergistic or additive effects from other toxic air contaminants, and effects on the environment.

**Background Information and AQD discussion**

The air toxics screening levels are benchmarks for public health protection for *single-substance inhalation exposure only*. Beyond the protections provided by the screening levels, the intent of Rule 228 was to enable the agency to evaluate *additional* concerns for air toxics emissions and, if justifiable, to restrict their emissions beyond the restrictions required by T-BACT (Rule 224) or the screening levels (Rule 225). These types of additional concerns may be categorized as follows:

1. Indirect exposure pathways, such as from mercury, dioxins, and other persistent bioaccumulative toxics (PBTs).
2. Exposure to multiple air toxics in an emission, and their potential interactive effects from inhalation exposure.
3. Environmental effects, such as the impacts on vegetation and aquatic biota from mining emissions and deposition.

For the great majority of Permit to Install (PTI) applications, the comparison of modeled ambient air impacts to the screening levels is sufficient, and no further “heightened” risk assessment steps are warranted. However, some PTI applications (perhaps one or two per year) are anticipated to be particularly controversial to the public, and staff may identify specific issues in categories 1-3 above

that can be informed by “heightened” risk assessment. In those cases, staff are less confident that reliance on the screening levels would, by default, ensure sufficient protection of the public health or environment. Staff and AQD management then discuss how to proceed, in order to develop needed information to address public concerns. In some cases, AQD staff develop the needed information, while in most such cases, AQD requests additional information from the applicant and supplements that information with further analysis and data presentation. **Appendix 1** provides a summary of the types of sources and concerns that have been addressed under the authority of Rule 228, and the roles of the applicant and AQD staff.

The scope of a “heightened” risk assessment, when it has been pursued, has been specific to the source and the situation. AQD has focused on the key issue(s) and has not broadly pursued extraneous information. For example, coal-fired power plants have been evaluated for mercury emissions, deposition and bioaccumulation in fish in one or (at most) a few nearby inland lakes. Incinerator dioxin emissions have been evaluated for local deposition, accumulation, and transfer up the food chain. Copper mining emissions have been evaluated for copper, nickel, arsenic and sulfuric acid deposition and environmental impacts. An iron mine was evaluated for mercury emissions, deposition, and bioaccumulation in fish in local inland lakes. The potential interactive inhalation effects of multiple emitted air toxics have been evaluated for several PTI applications. See **Appendix 1** for more information.

The public comment process for such PTI applications can be contentious. AQD staff have addressed public concerns at public meetings, both verbally (panel Q&A or “open house” format) and in written form (Staff Report and FAQs documents), using the heightened risk assessment information. If a permit is issued, AQD has used the heightened risk assessment information in responding to public comments that were in opposition to permitting, in Response to Comments documents. AQD has faced litigation, and, environmental justice complaints to the EPA Office of Civil Rights. Thus far complainants have not prevailed in showing that AQD permitting was unprotective and inappropriate. It is difficult for AQD to envision being able to adequately address public concerns, and defend some permitting decisions, without “heightened” risk assessment information in such cases.

While the “heightened” risk assessment information has been very valuable, AQD has not used the authority under R 228 to require a lower allowable emission rate. A summary of the historical application of R 228 is attached in **Appendix 1**. While the impact findings have not yet been used to require lower emission rates than would be allowed otherwise, the focus on these concerns may have influenced T-BACT requirements in some cases. The findings have been very helpful to the AQD in presenting proposed projects to the public, and have addressed concerns raised by the public or by staff.

The concern with Rule 228, as expressed in the ORR report, is that the rule allows the AQD to go beyond the requirements of Rule 225 “for any reason”. As written, the rule language does give the agency broad discretion to develop and consider air toxics impact information and to restrict

emissions, “considering all relevant scientific information”. The pursuit of such information does in many cases place an additional burden on the applicant and can contribute to some delays in permit application and review. However, it is AQD’s opinion that the agency has been judicious in exercising this authority to pursue further relevant scientific information, has found a great benefit of that information to the agency, to the public, and to the permit applicants, and has not used the findings to require lower allowable emission rates.

#### **AQD Request for ATW Discussion**

AQD has significant concerns for rescinding the rule, because it would greatly diminish the agency’s ability to adequately address some future air toxics issues raised in permitting contentious sources. In order to attempt to address the ORR report’s point about the breadth of the rule, AQD has considered potential options for limiting the scope and application of the rule. We have considered potential ways to revise the rule so that it is explicitly focused on more specific situations. AQD is unsure to what extent any such approaches would be acceptable to the regulated community in lieu of rescinding the rule, and, we have identified some concerns / disadvantages to all of the potential approaches that we have considered. AQD would also appreciate feedback on a potential, simple change in the rule language which may lessen the concern that AQD has too much discretionary authority, by changing, “The department may determine, on a case-by-case basis...” to, “The Director may determine, on a case-by-case basis...”.

**Appendix 1.** Summary of the types of sources and issues that have been subjected to heightened impact assessments under the authority of R 228.

Source type	Focus of evaluation	Provided by the Applicant (beyond air dispersion modeling for R225)	Provided by AQD Staff	Outcome / AQD finding
Hazardous Waste Incinerator	Dioxin emissions, deposition, bioaccumulation, and multipathway exposure, cumulative with the existing local contamination.	Deposition modeling, multipathway risk assessment.	Verified applicant's modeling and risk assessment, added further characterization and perspectives on the impacts, presented results to the public, responded to comments.	Not found to pose significant concerns. The incremental impacts were small relative to health protective benchmarks and relative to the existing contamination.
Municipal Waste and Sewage Sludge Combustors	Cumulative air toxics exposures and effects; dioxins and mercury multipathway risks; lead deposition and children's exposure and neurological effects <sup>1</sup> .	Deposition modeling, multipathway risk assessment (in one case); nothing additional (in one case).	Verified applicant's modeling and risk assessment, added further characterization of the impacts, presented results to the public, responded to comments.	Not found to pose significant concerns.
Coal-fired power plants	Mercury deposition and bioaccumulation, cumulative with background Hg levels; cumulative air toxics cancer and noncancer effects; lead impacts <sup>1</sup> .	Deposition modeling, multipathway risk assessment.	Verified applicant's modeling and risk assessment, added further characterization of the impacts, presented results to the public, responded to comments.	Not found to pose significant concerns.
Tire-derived fuel (TDF) use at a wood-fired power plant	Sulfur emission ↑, acid deposition, ecosystem impacts.	None.	Acid deposition modeling for potential impacts to a nearby lake.	Not found to pose significant concerns; permit denied due to lack of scrubbers (BACT).
Petroleum refinery	Cumulative air toxics impacts.	None. (Note: applicant did an EJ analysis of NAAQS only.)	Cumulative air toxics cancer and noncancer exposures and risks (for facility emissions).	Not found to pose significant concerns.

Source type	Focus of evaluation	Provided by the Applicant (beyond the usual air dispersion modeling)	Provided by AQD Staff	Outcome
Auto plant, painting & coating	Cumulative air toxics effects of VOCs. One facility was a known source of significant solvent odors.	None.	Cumulative VOC exposure and risk assessment based on modeling (for facility emissions) and on local air monitoring data.	Not found to pose a significant public health risk. One facility added controls to address the odor issue.
Mining	Deposition of metals and sulfates (acid dep), ecosystem impacts. Mercury deposition and multipathway risk assessment also evaluated for one iron mine.	Deposition modeling for local watersheds. Mercury impacts modeling for local lakes, for one mine.	Assessment of potential loading to local surface waters, comparison of incremental deposition rates to background rates, comparison of topsoil loading to soil cleanup criteria.	Not found to pose a significant risk of adverse ecosystem impacts. For one mine, mercury impacts to anglers or piscivorous wildlife were found to be low.
Cement kiln	Mercury deposition and multipathway risk assessment.	Deposition modeling for one selected local lake.	Verified deposition modeling, modeled fish bioaccumulation, characterized impacts.	Pending.
Steel mill; Metal shredder	Mercury deposition and multipathway risk assessment. One steel mill: cumulative inhalation; lead impacts to children <sup>1</sup> .	None.	Deposition modeling, multipathway risk assessment. Cumulative impacts and lead impacts to children <sup>1</sup> (one steel mill).	Not found to pose significant concerns.
Asphalt plants	Cumulative air toxics cancer and noncancer effects.	None.	Cumulative air toxics cancer and noncancer exposures and risks, for facility emissions plus background (from NATA and mon. data).	Not found to pose significant concerns.

<sup>1</sup> It may be noted that, prior to EPA's 10-fold reduction in the lead NAAQS in 2008, AQD performed several multipathway risk assessments for lead air emissions from various proposed sources. However, since lead is not a TAC, these assessments were performed under the authority of R 901 rather than R 228. The current NAAQS, unlike the previous NAAQS, is based on the current toxicology of lead exposure and more fully accounts for deposition impacts and exposure via the oral route as well as inhalation. Lead assessments are included in this table only to indicate the scope of the assessment.